**4.1**

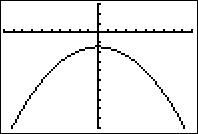
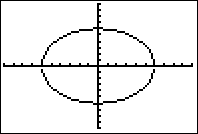
**Functions**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_**

**Determine whether the formula determines y as a function of x. If not, explain why not.**

Use the vertical line test to determine whether the curve is the graph of a function.

3. 4.

**Find the domain of the function algebraically. Show work!**

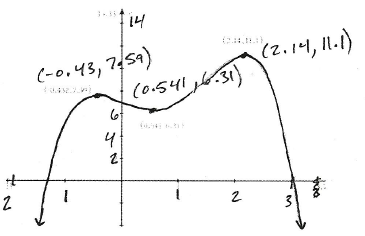
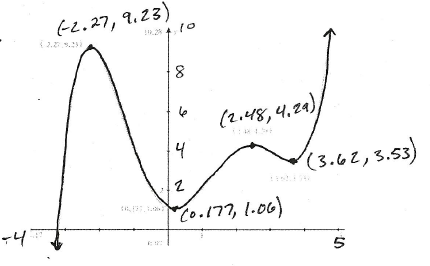
 

**Find the range of each function by graphing.**

**State whether each labeled point identifies a local maximum, local minimum or neither. Identify intervals on which the function is decreasing and increasing.**

15. 16.

**Graph the function and identify intervals on which the function is increasing, decreasing or constant.**



**Use a grapher to find all local maxima and minima and the values of x where they occur. Round answers to two decimal places.**

**Use a method of your choice to find all horizontal and vertical asymptotes of the function.**

26. **A walkway with a width of x feet borders a garden that is 30 ft. by 50 ft. Determine the domain of the area function that describes the area which includes the walkway in terms of x, if the area is less than 2016 ft2.**

27. **An object is thrown with an initial velocity of 50 ft/s. What is the real world domain for the situation?**

**Use**  **as the model.**

**28. A square of side x centimeters is cut out of each corner of a 24 cm by 18 cm piece of thin plastic to form and open-topped box. Determine the domain of the volume function in the terms of x.**

**29. A brick border of x feet is installed inside a garden that currently measures 30 feet by 24 feet. Determine the domain of the area function that describes the reduced garden in terms of x.**

**30. An object is dropped from a ledge of an open window that is 40 feet above the ground. What is the domain for the situation? (Hint: Use )**

**31. A parking garage charges $1.25 per hour with a maximum charge of $11.25 per day. Determine the domain.**